

REMARKS

The foregoing amendments and the following remarks are responsive to the Office Action mailed May 1, 1997.

Applicant acknowledges the Examiner's statement that claims 36-47 are allowable over the prior art.

Claim Rejections for Informalities

Claim 42 was objected to because of certain informalities. Claim 42 has been amended as suggested by the Examiner.

Claim Rejections under 35 U.S.C. § 112, second paragraph

Claims 26-35 were rejected under 35 U.S.C. § 112, second paragraph. The Claims have been amended as suggested by the Examiner. Accordingly, applicants submit that Claims 26-35, as amended, satisfy the requirements of 35 U.S.C. § 112, second paragraph.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 26, 27 and 33-35 were rejected under 35 U.S.C. § 102(b) as being anticipated by Shimizu (U.S. Patent No. 5,400,074).

The present invention provides a camera that includes a sensor configured to capture an image and generate a sensor output signal representing the captured image. The camera further includes an amplifier coupled to receive the sensor output signal. The amplifier is configured to apply multiple gain levels to the sensor output signal. In addition, a processor is coupled to the amplifier. The processor is configured to provide a control signal to the amplifier to adjust the gain levels applied by the amplifier.

The Shimizu reference discloses a video camera device that removes the blind zone of its iris, and realizes natural exposure control. See Shimizu at col. 3, ll. 21-25. The arrangement shown in Figure 5 illustrates a CCD image pickup device, an AGC amplifier coupled to the CCD image pickup device, a control amount computer circuit, and a D/A converter coupled to the CCD image pickup device and the control amount computer circuit. An output from the CCD image pickup device is supplied to the AGC amplifier. The gain of the AGC amplifier is controlled in response to an output signal from the D/A converter. See Shimizu at col. 4, ll. 45-48. Although the Shimizu reference discloses an amplifier coupled to receive output signals from a sensor, Shimizu does not disclose a processor coupled to the amplifier, in which the amplifier is configured to apply multiple gain levels.

Claim 26, as amended, recites an amplifier that is configured to apply multiple gain levels to a sensor output signal. The Shimizu reference discloses an AGC amplifier in which the entire gain is controlled in response to a signal from a D/A converter. Nevertheless, the AGC amplifier in Shimizu is not configured to apply multiple gain levels to the sensor output signal. Thus, Shimizu does not disclose an amplifier that is configured to apply multiple gain levels. As discussed in the present application, an amplifier applies a gain level to each region of an array of image regions within a captured image. This is advantageous because it results in more precise gain adjustments to the captured image.

Applicant submits that Claim 26 is not anticipated by Shimizu under 35 U.S.C. § 102(b) and respectfully requests that the rejection be withdrawn. Dependent Claims 27 and 33-35 contain the limitations of Claim 26 discussed above. Thus, applicant submits that Claims 27 and 33-35 are not anticipated by Shimizu.

Claim Rejections under 35 U.S.C. § 102(e)

Claims 26, 27 and 33-35 were rejected under 35 U.S.C. § 102(e) as being anticipated by Iwamatsu (U.S. Patent No. 5,512,948).

The Iwamatsu reference discloses a negative-image signal processing circuit for realizing appropriate white balance of negative-image color signals. See Iwamatsu at col. 4, ll. 8-19. The arrangement shown in Figure 1 illustrates an image pickup apparatus coupled to two GCA amplifiers, and a microcomputer coupled to each GCA amplifier. Each GCA amplifier performs a white-balance adjustment such that the maximum (black peak) and minimum (white peak) levels for each of three primary color signals (G, R and B) coincide with one another. See Iwamatsu at col. 4, ll. 20-40. The white-balance adjustment process occurs as each GCA amplifier provides a single gain level to a particular color signal. See Iwamatsu at col. 9, ll. 44-49. It is therefore apparent that Iwamatsu does not disclose an amplifier that is configured to apply multiple gain levels to a signal.

Claim 26, as amended, recites an amplifier that is configured to apply multiple gain levels to a sensor output signal. The Iwamatsu reference discloses a GCA amplifier that applies a single gain level to a color signal in order to perform a white-balance adjustment. Consequently, Iwamatsu does not disclose an amplifier configured to apply multiple gain levels to a signal, as recited in Claim 26. Applicant submits that Claim 26 is not anticipated by Iwamatsu under 35 U.S.C. § 102(b) and respectfully request that the rejection be withdrawn. Dependent Claims 27 and 33-35 contain the limitations of Claim 26 discussed above. Thus, applicant submits that Claims 27 and 33-35 are not anticipated by Iwamatsu.

Claims 26, 27 and 33-35 were further rejected under 35 U.S.C. § 102(e) as being anticipated by Koyama (U.S. Patent No. 5,448,306).

The Koyama reference discloses an image processing apparatus for processing an input analog image signal. See Koyama at col. 2, ll. 8-10. The arrangement shown in Figure 1 illustrates an imaging device for acquiring an analog signal, an AGC circuit coupled to the imaging device, and a control circuit coupled to the AGC circuit. The AGC circuit controls the level of the analog signal by applying a single gain level determined by the control circuit. See Koyama at col. 3, ll. 23-30. The control circuit includes a CPU that transmits a control signal to the AGC circuit in order to control the gain of the analog signal. See Koyama at col. 5, ll. 41-70. Like Iwamatsu, Koyama does not disclose an amplifier that is configured to apply multiple gain levels to a signal.

As described above, Claim 26 recites an amplifier that is configured to apply multiple gain levels to a sensor output signal. The Koyama reference discloses an AGC circuit that applies a single gain level to an analog signal. Accordingly, Koyama does not disclose an amplifier configured to apply multiple gain levels to a signal, as recited in Claim 26. Applicant therefore submits that Claim 26 is not anticipated by Koyama under 35 U.S.C. § 102(b) and respectfully request that the rejection be withdrawn. Dependent Claims 27 and 33-35 contain the limitations of Claim 26 discussed above. Thus, applicant submits that Claims 27 and 33-35 are not anticipated by Koyama.

Summary

In view of the foregoing amendments and remarks, applicant respectfully submits that all pending claims are in condition for allowance. Such allowance is respectfully requested.

If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference,

the Examiner is respectfully requested to contact Steven Sponseller at (408) 720-8598.

Deposit Account Authorization

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

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